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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,771	11/26/2003	Scott Mordin Hoyte	128596	7209

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EXAMINER

KRAMSKAYA, MARINA

ART UNIT	PAPER NUMBER
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2858

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/722,771	Applicant(s) HOYTE ET AL.	
	Examiner Marina Kramskaya	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 9-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/26/2003</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C.

121:

- I. Claims 1-8, drawn to "a method of testing a cable", classified in class 324, subclass 539.
- II. Claim 9-10, drawn to "a method of testing fluid intrusion into a cable", classified in class 324, subclass 694.
- III. Claims 11-20, drawn to "a system for testing including eddy current and RF", classified in class 324, subclass 207.26.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the cable testing of group I does not require a transducer cable system with fluid detection or different frequencies of group II. The subcombination has separate utility such as a method for specifically testing fluid intrusion into cables.

3. Inventions I, II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another and materially different apparatus such as a device which does not require an eddy current transducer positioned in RF communication with a target, where the transducer is configured to generate an output signal relative to a gap distance.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Claims 9-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 02/17/2005.

5. Applicant's election with traverse of invention group I, claims 1-8, in the reply filed on 02/17/2005 is acknowledged. The traversal is on the ground(s) that it is believed by the applicant that a search and examination of either claim group

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would be relevant to the examination of the other group. This is not found persuasive because the applicant did not distinctly and specifically point out the supposed errors in the restriction requirement. Invention groups I and II are related as combination and subcombination, wherein the cable testing of group I does not require a transducer cable system with fluid detection or different frequencies of group II. The subcombination has separate utility such as a method for specifically testing fluid intrusion into cables. Inventions I, II and III are related as process and apparatus for its practice, wherein the process as claimed can be practiced by another and materially different apparatus such as a device which does not require an eddy current transducer positioned in RF communication with a target.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

6. The drawings are objected to under 37 CFR 1.83(a) because they fail to show Z_p , $Z_{unknown}$, X_1 , X_2 , R_1 , R_2 , L_1 , & L_2 , as in paragraph [0031], as described in the specification.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended.

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The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the look-up table of inductive gap versus parallel impedance, as in Claim 7, must be shown or the feature(s) canceled from the claim(s). Incorporated in the present application is a look-up graph of inductive gap versus parallel impedance gap. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not

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be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to because trace **310** is not in FIG. 4; the reference numeral is pointing to a blank space in between other traces. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining

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figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. The disclosure is objected to because of the following informalities: in paragraph 0029, "inductive ratio measurement 202" should be "204".

Appropriate correction is required.

10. The disclosure is objected to because of the following informalities: an explanation of the correlation between the parallel impedance and the parallel impedance gap, as shown in FIG. 3, is not provided.

Appropriate correction is required.

11. The disclosure is objected to because of the following informalities: in paragraphs [0031] troughs [0032], inductive ratio measurement at two different frequencies is disclosed. The following paragraphs of the specification refer to inductive ratio measurement at three difference frequencies. The operation of impedance measurement at three frequencies is unclear.

Appropriate correction is required.

Claim Objections

Claim 5 is objected to because of the following informalities: "...averaging the at least one inductive ratios" is grammatically incorrect. The following change is suggested: "...averaging at least one of the inductive ratios".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Slates, US 6,346,807.

As per Claim 1, Slates discloses a method of testing a cable (20 and 30), said method comprising:

- measuring at least one inductive ratio for the cable (column 35, line 66 - column 36, line 2);
- determining an inductive gap from the at least one inductive ratio (column 11, lines 36-38);
- measuring a parallel impedance of the cable (column 2, lines 30-34); and

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- determining a resistance of the cable based on the inductive gap and the parallel impedance (FIG. 20, resistance on x axis).

As per Claim 2, Slates further discloses a method of testing a cable, wherein measuring an inductive ratio for the cable comprises measuring the inductive ratio for the cable at each of a plurality of predetermined frequencies (FIG. 2, 5 predetermined frequencies).

As per Claim 3, Slates further discloses a method of testing a cable, wherein measuring an inductive ratio for the cable comprises measuring the inductive ratio for the cable using three different predetermined frequencies (FIG. 2, 5 predetermined frequencies).

As per Claim 4, Slates further discloses a method of testing a cable, wherein measuring at least one inductive ratio for the cable comprises measuring the at least one inductive ratio for the cable substantially simultaneously with measuring the parallel impedance of the cable in real-time (column 38, lines 56-57). The inductive ratio measuring and parallel impedance measuring algorithms are broadly interpreted as "multiple signal processing algorithms on the system, run at the same time".

As per Claim 5, A method in accordance with Claim 1 wherein determining an inductive gap from the inductive ratio comprises averaging at least one

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inductive ratio (column 19, lines 5-11). Slates discloses averaging the voltages from which the inductive ratio is derived. Therefore, it would be obvious to a person of ordinary skill in the art to average the inductive ratio.

As per Claim 6, Slates further discloses a method of testing a cable, wherein determining a resistance of the cable comprises locating the resistance value using a look-up table (column 21, lines 42-47). It would be obvious to a person of ordinary skill in the art to obtain the resistance from the impedance lookup table, as resistance is part of the equivalent impedance value.

As per Claim 7, Slates discloses a method of testing a cable as in Claim 6 above, and further discloses the testing method, wherein locating a resistance value using a look-up table comprises locating the resistance value using a look-up table of inductive gap versus parallel impedance (FIG. 20). It would be obvious to a person of ordinary skill in the art to look up the resistance from a graph that display both the impedance and inductive gap.

As per Claim 8, Slates discloses a method of testing a cable as in Claim 7 above, and further discloses the testing method, wherein the look-up table is empirically derived and wherein locating the resistance value using the look-up table further comprises:

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determining a first look-up table curve using a first predetermined resistance (Known Load, FIG. 14) coupled in circuit parallel with the cable (column 29, lines 10-13);

determining a second look-up table curve using a second predetermined resistance (Known Load, FIG. 14) coupled in circuit parallel with the cable (column 29, lines 13-14) wherein the second resistance is different than the first resistance (column 29, lines 49-50);

correlating an average of the cable inductive ratios to a look-up table inductive gap (column 5, lines 52-58);

correlating a parallel impedance of the cable to a look-up table parallel impedance (column 5, lines 7-8); and

determining a cable resistance based on the look-up table (column 21, lines 42-47). It would be obvious to a person of ordinary skill in the art to obtain the resistance from the impedance lookup table, as resistance is part of the equivalent impedance value.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Amrany et al., US 6,534,996, discloses a method of testing cables, wherein the impedance ratio is measured. Andersen, III, US 5,410,488, discloses a method of measuring a gap based on impedance and inductance measurements and a look-up table. Danielson, US 5,541,510, and Mednikov et al., US 6,479,990 disclose a method of measuring a gap using

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inductance, impedance, and resistance measurements. Tuttle, US 6,281,685, discloses a method of testing a cable by measuring inductance and resistance. Laskowski, US 5,420,507, discloses a method of measuring parallel impedance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Kramskaya whose telephone number is (571)272-2146. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571)272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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